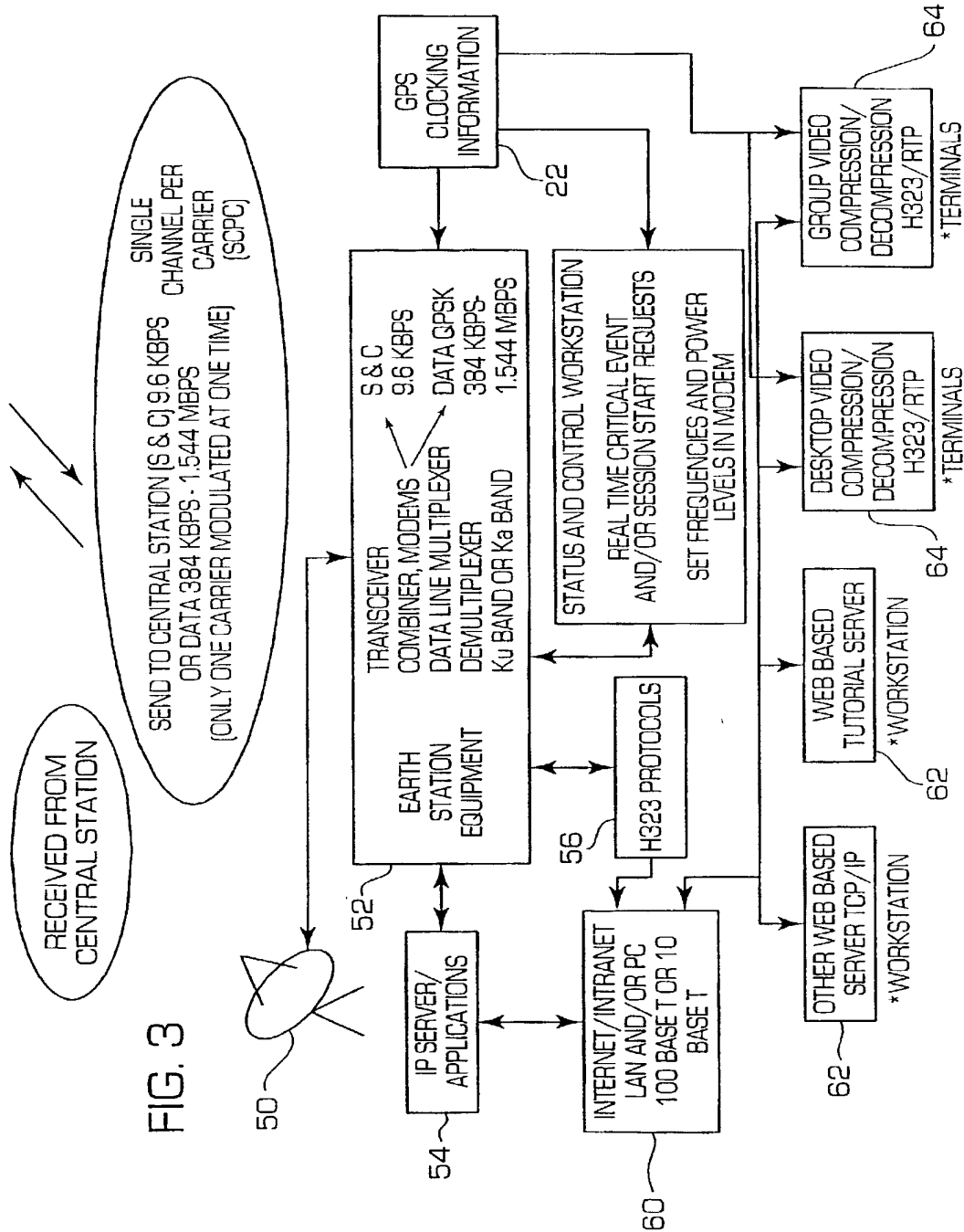
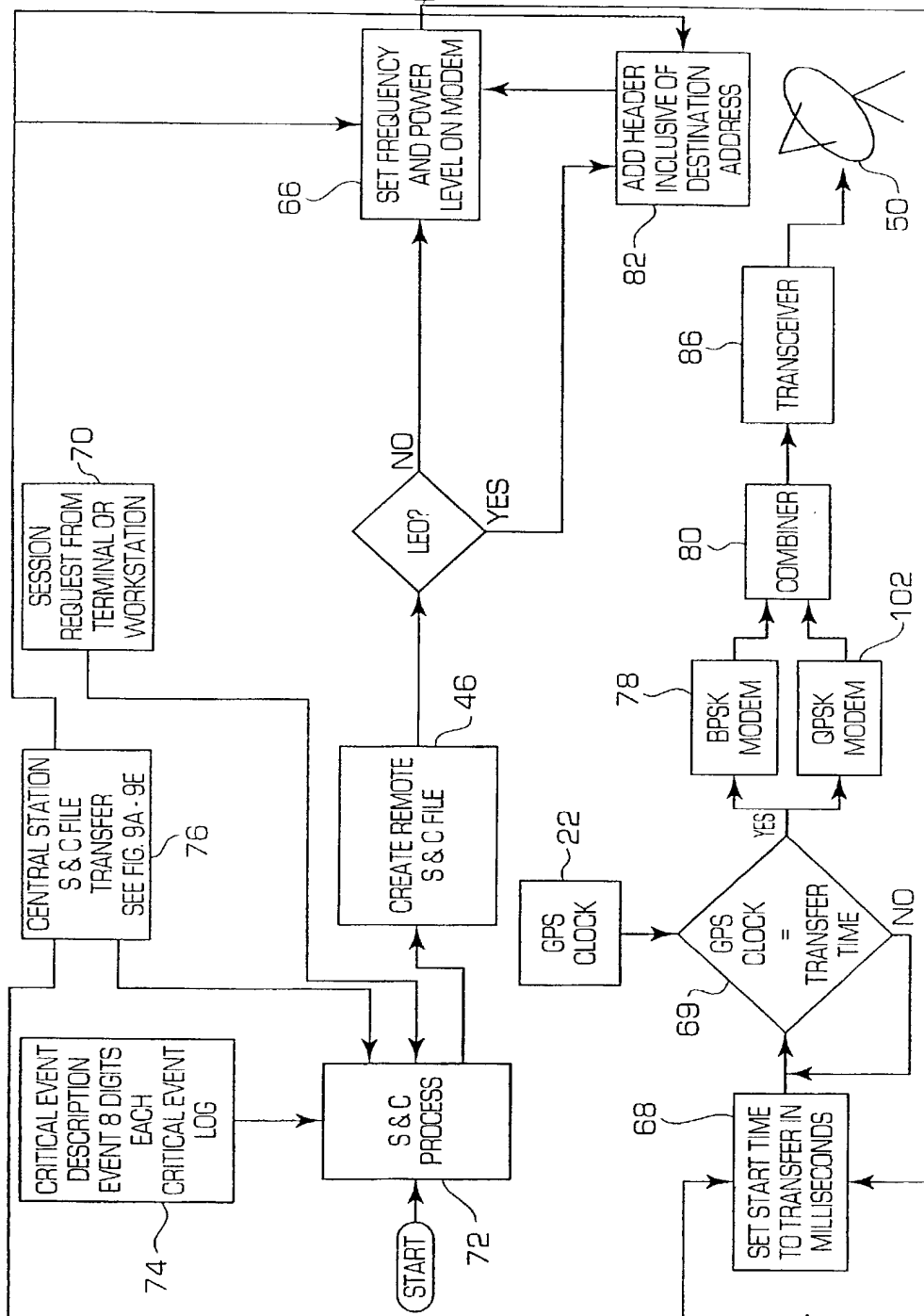


FIG. 1





*NOTE: REFER TO EXAMPLE FIG. 9 THE NUMBER OF WORKSTATIONS AND TERMINALS ARE LIMITED TO QTY. 10 AT 384 KBPS, QTY 5 AT 786 KBPS, QTY. 2 AT 1.544 M/ BITS. THE ACTUAL NUMBER CAN BE GREATER DEPENDING ON THE IMPLEMENTATION SIZE OF THE FILE DEFINITIONS.



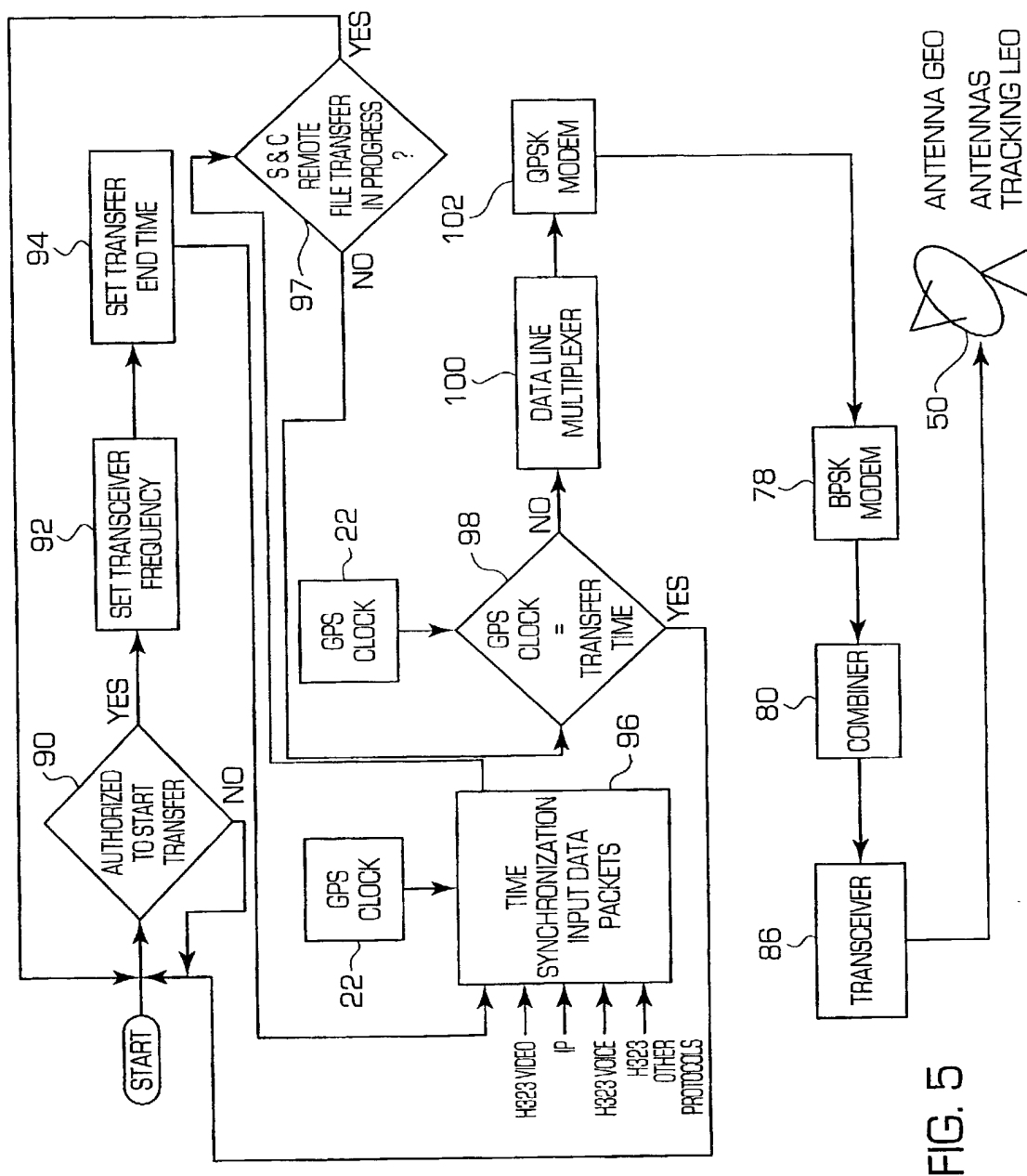


FIG. 5

FIG. 6

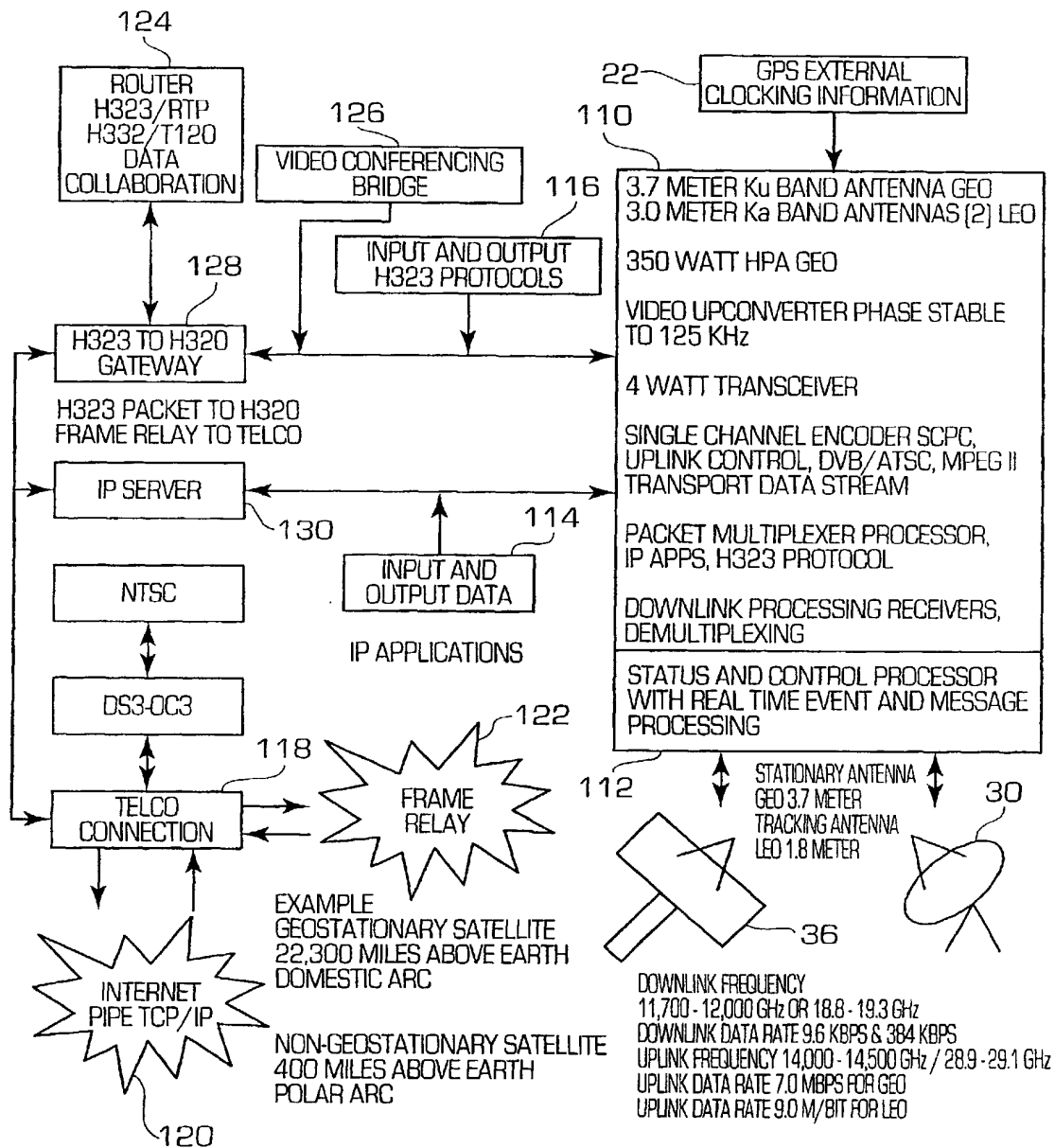


FIG. 7

RECEIVED FROM CENTRAL STATION
18.8 GHz - 19.3 GHz

GEO 1.8 - 2.4 METER
LEO < 1 METER

SEND TO CENTRAL STATION (S & C) 9.6 Kbps
OR DATA 384 Kbps - 1.544 Mbps
28.9 GHz - 29.1 GHz
14 GHz - 14.5 GHz
SINGLE CHANNEL PER CARRIER (SCPC)

50

52

GPS
CLOCKING
INFORMATION
22

TRANSCEIVER
COMBINER, MODEMS
DATA LINE MULTIPLEXER
DEMULTIPLEXER
Ku BAND OR Ka BAND

58

STATUS AND CONTROL WORKSTATION
REAL TIME CRITICAL EVENT
AND/OR SESSION START REQUESTS
SET FREQUENCIES AND POWER
LEVELS IN MODEM

56

H323 PROTOCOLS

60

INTERNET/INTRANET
LAN AND/OR PC
100 BASE T OR 10
BASE T

54

IP SERVER/
APPLICATIONS

62

OTHER WEB BASED
SERVER TCP/IP
*WORKSTATION

62

WEB BASED
TUTORIAL SERVER
*WORKSTATION

64

DESKTOP VIDEO
COMPRESSION/
DECOMPRESSION
H323/RTP
*TERMINALS

64

GROUP VIDEO
COMPRESSION/
DECOMPRESSION
H323/RTP
*TERMINALS

09/220,540

**Title: Real-Time Satellite Communications System
Using Separate Control and Data Transmission Paths**

Our Ref.. A7881

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FIG. 8A

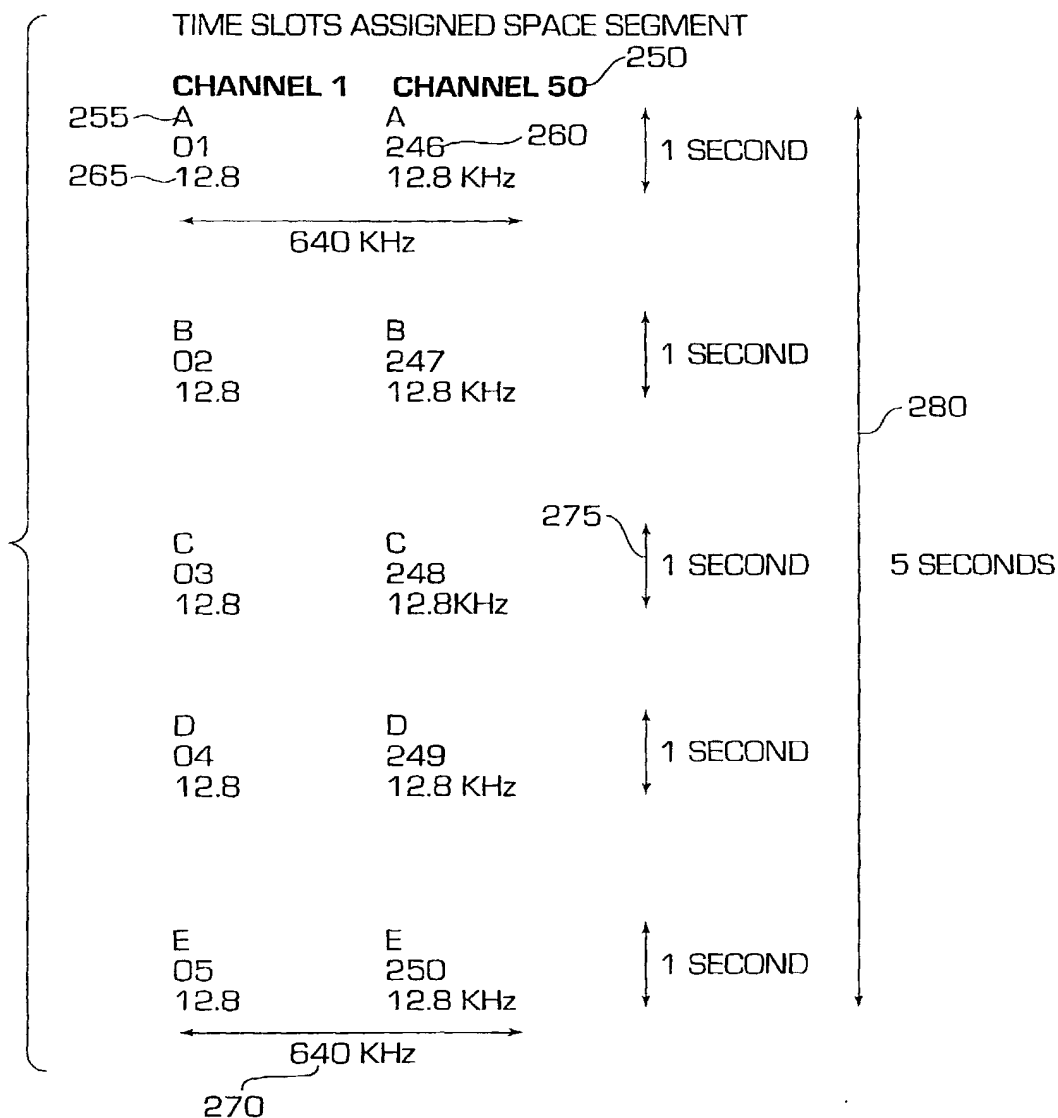


FIG. 8B

182

FIG. 9A

EXAMPLE
073
SEVEN
CHANNELS OF
384 KBPS

FIG. 9B

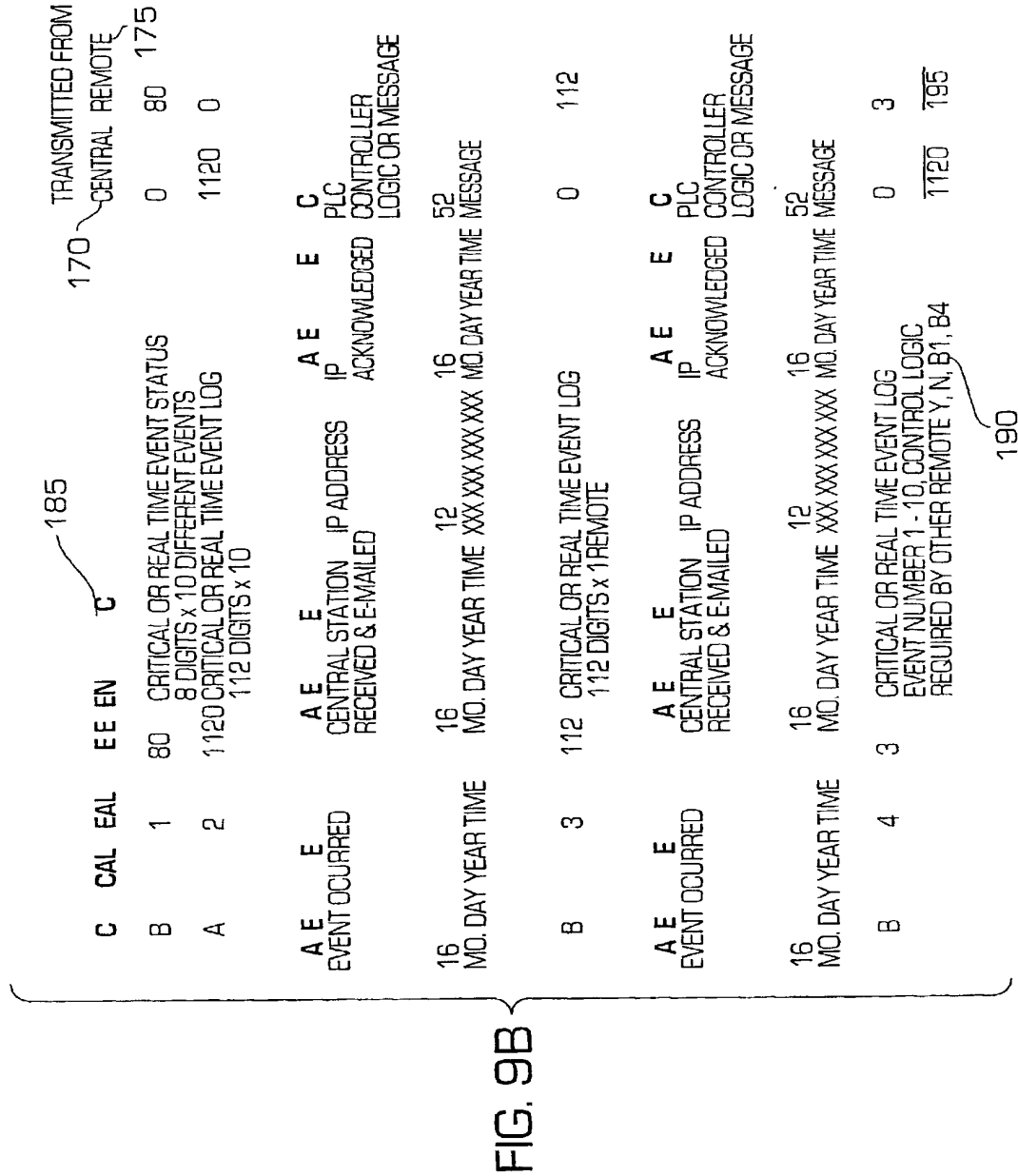


FIG. 9C

A A E C N A H				195	TRANSMITTED FROM	
384 KBPS TRANSFER				200	170 CENTRAL	REMOTE
C	1	80	TRANSFER FREQUENCY 8 DIGITS EACH x 10	80	0	175
C	2	80	TRANSFER POWER LEVEL 8 DIGITS EACH x 10	80	0	
C	3	80	TRANSFER START TIME 8 DIGITS EACH x 10	80	0	
C	4	80	TRANSFER STOP TIME 8 DIGITS EACH x 10	80	0	
C	5	120	TRANSFER FROM REMOTE STATION ID AND OR WORKSTATION 12 DIGITS x 10	0	120	
C	6	120	TRANSFER TO WORKSTATION 12 DIGITS x 10	120	0	
C	7	120	TRANSFER TO TERMINAL 120 DIGITS x 10	120	0	
C	8	40	TRANSFER TO GROUP 4 DIGITS x 10	0	40	
210				205 C1 - C8	400	160
786 KBPS TRANSFER						
D	1	40	TRANSFER FREQUENCY 8 DIGITS x 5	40	0	
D	2	40	TRANSFER POWER LEVEL 8 DIGITS x 5	40	0	
D	3	40	TRANSFER START TIME 8 DIGITS x 5	40	0	
D	4	40	TRANSFER STOP TIME 8 DIGITS x 5	40	0	
D	5	60	TRANSFER FROM REMOTE STATION ID AND OR TERMINAL OR WORKSTATION 12 DIGITS x 5	0	60	
D	6	60	TRANSFER TO WORKSTATION 12 DIGITS x 5	60	0	
D	7	60	TRANSFER TO TERMINAL 12 DIGITS x 5	60	0	
D	8	20	TRANSFER TO GROUP 4 DIGITS x 5	0	20	
220				215 D1 - D7	270	80
1.5 KBPS TRANSFER						
E	1	16	TRANSFER FREQUENCY 8 DIGITS x 2	16	0	
E	2	16	TRANSFER POWER LEVEL 8 DIGITS x 2	16	0	
E	3	16	TRANSFER START TIME 8 DIGITS x 2	16	0	
E	4	16	TRANSFER STOP TIME 8 DIGITS x 2	16	0	
E	5	24	TRANSFER FROM REMOTE STATION ID AND OR TERMINAL OR WORKSTATION 12 DIGITS x 2	0	24	
E	6	24	TRANSFER TO WORKSTATION 12 DIGITS x 2	24	0	
E	7	24	TRANSFER TO TERMINAL 12 DIGITS x 2	24	0	
E	8	8	TRANSFER TO GROUP 4 DIGITS x 2	0	8	
				E1 - E8	112	32
TOTALS A, B, C, D, E					2060	602

FIG. 9D

E N N A E 1				~235
				# OF DIGITS
CLASS A				3
CLASS B				3
CLASS C				3
IP ADDRESS				
WITHIN CLASS C				3
TOTAL				12
230				
DEFINITION OF GROUP (4 DIGITS)				236
GROUP 0001 - 9999				

FIG. 9D

FIG. 9E

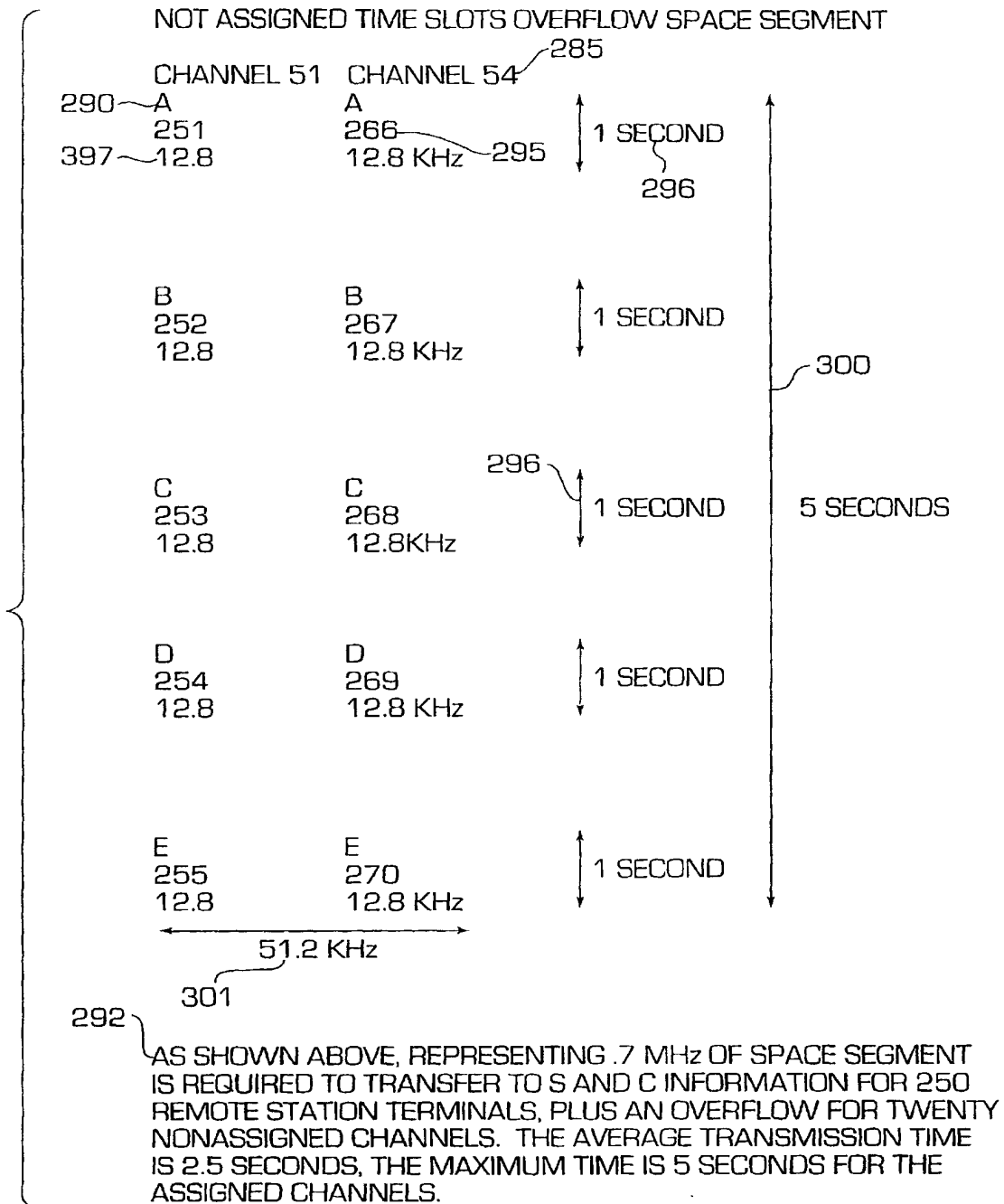
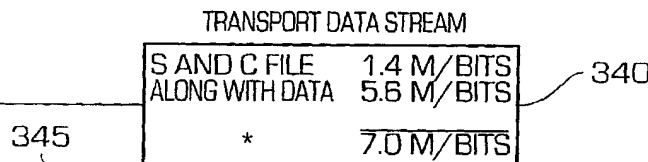
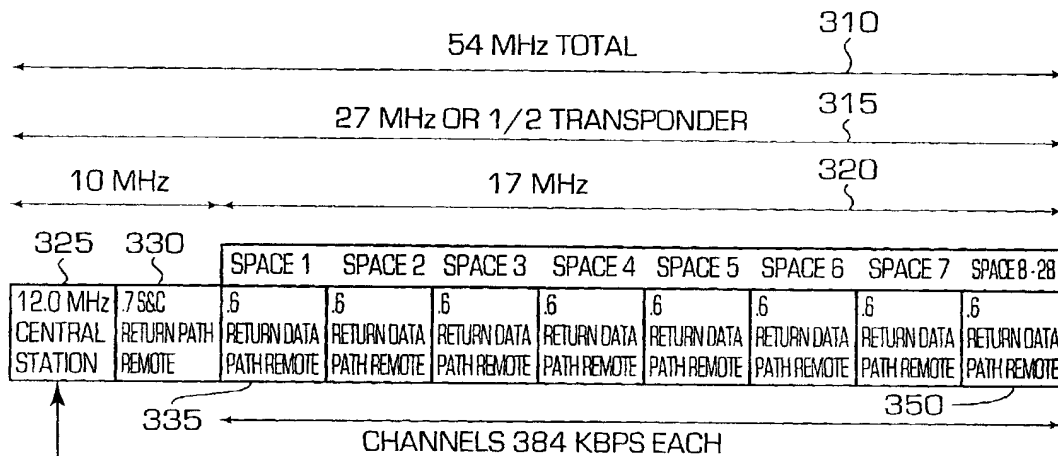


FIG. 10



TIME SLOT TDMA WITH OVERFLOW				
KHz				
12.8	12.8	12.8	12.8	

1	2	3	4-53	54
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S AND C CHANNEL NUMBER

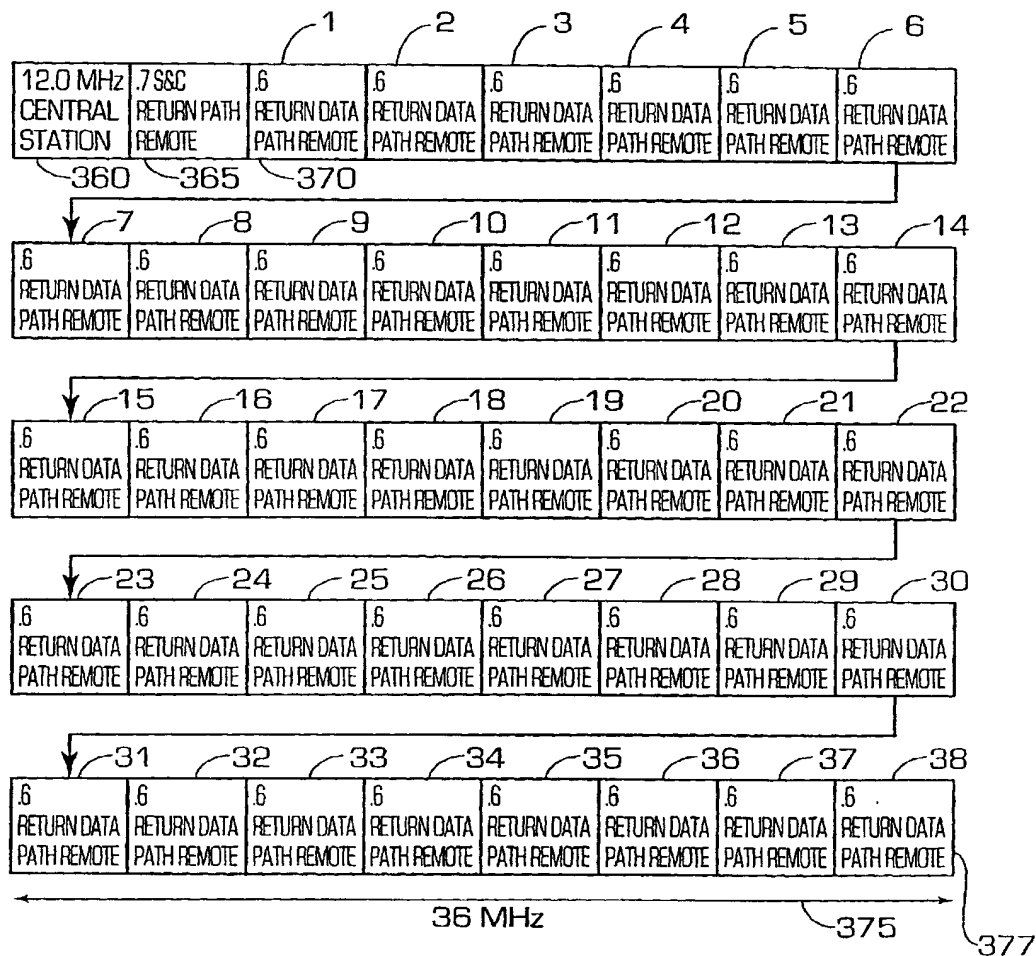
SEE FIG. 8

7.0 M/BITS REQUIRE 9.31 MHz OF SPACE SEGMENT
THE S & C FILE TRANSFER RATE IS 9.6 KBPS WHICH
USES 12.8 KBPS OF SPACE SEGMENT x 54 = 0.7 MHz
OF SPACE SEGMENT

TWO HUNDRED FIFTY REMOTE SITES CAN ACCESS ONE
OF TWENTY EIGHT 384 KBPS DATA CHANNELS. THE
CENTRAL SITE CAN TRANSMIT 7 M/BITS OF DATA AT AN
EFFECTIVE RATE OF 14.0 MBITS USING A QPSK MODULATION
SCHEME

NOTE: THE 250 REMOTES WILL NEED TO BE ADDRESSED ONCE
EACH FIVE SECONDS. THEREFORE, 54 REMOTES WILL HAVE
THEIR FILES TRANSFERRED. EVERY SECOND, THERE ARE 2,300
DIGITS (2300 x 8 = 18,400) OR 18,400 BITS TO TRANSMIT PER
REMOTE. THE TOTAL TRANSFER WILL BE 18,400 BITS PER
REMOTE TIMES 54 REMOTES THAT NEED TO BE ADDRESSED
EACH SECOND. 18,400 x 54 = 993,600 BITS PER SECOND
OR 993,600 x 1.33 = 1.32 MEGABITS OF BANDWIDTH

FIG. 11



250 REMOTE SITES CAN ACCESS ONE OF THIRTY-EIGHT 384 KBPS DATA CHANNELS. *THE CENTRAL SITE CAN TRANSMIT 9.0 M/BITS OF **SYNCHRONOUS AND ASYNCHRONOUS DATA WITH AN EFFECTIVE THROUGHPUT RATE OF 18 M/BITS BY USING A QPSK MODULATION SCHEME. THE .7 KBPS OF S & C FILE UPDATE REMOTE INFORMATION (SEE TIME SLOTS IN FIG. 8) WILL USE A BPSK MODULATION SCHEME. **THIS IMPLEMENTATION IS BASED ON SYNCHRONOUS DATA.